

# LED: MORE LIGHT TO THE WORLD!

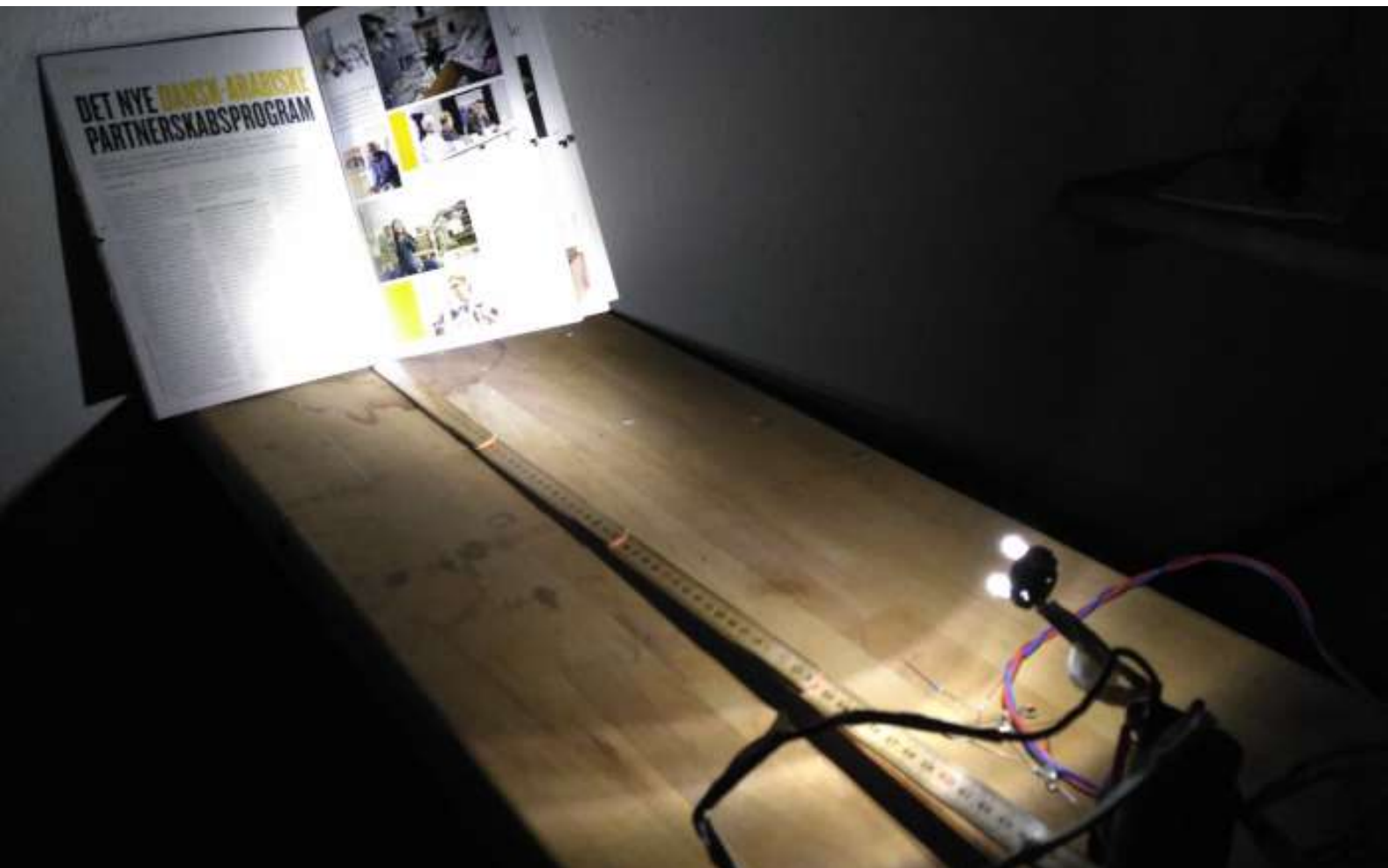
An introductory course on LED technology, from design to implementation



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# Introduction

## It's all about Light!

Imagine your life without light...can you?

We never realize the importance of light up to the moment we do not have it. Sadly, still too many places in the world do not have access to illumination, meaning that people's lives are limited to when the sun shines.

We want to change that and to give **a chance to everybody to access illumination**, which is why this course was established. The course is the result of more than three years of research on **LED technology**, knowledge that we are now ready to share with the world.

Our main focus is light in schools (which is why we built a test classroom!), but this does not mean that the solutions cannot be applied for private illumination...we give you the tools, you decide how to use them!

The course, which lasts a week, will focus on all the **theory** needed to develop a cheap and reliable illumination system that can be powered by a little power-bank. Nevertheless, theory is not enough: we want the participants not only to be able to build such system, but also to have the needed knowledge to teach others in doing so. This is why the course will have a major focus on the **practical realization** of these solutions.

We believe that the impact of this course is huge: the **Train-the-Trainer approach** allows for a quick spreading of knowledge and it provides the tools which will lead to **new job opportunities**, as the participants be able to start their own businesses within the illumination sector.





# Syllabus

## Day 1

- How does an LED work?
- Angles, distances, lux, lumen, candela, resistors and batteries: all what you need to know about establishing an illumination system

## Day 2

- Continuation of the topics of the first day
- Solar and photovoltaic energy

## Day 3

- Learn how to solder electronics
- Build an LED lamp

## Day 4

- Multiple diode connection
- Learn how to make the supporting structures

## Day 5

- Optimal illumination
- Troubleshooting of the system

## Day 6

- Comparison of different battery solutions
- Power-bank analysis & construction

## Day 7

- Sum-up of the course
- Certificate delivery



**Jan Harry Frederiksen**

Educated as constructing engineer and energy technician, Jan Harry has a long experience in the teaching world. His research focus for the last five years was on efficient and affordable illumination. Through his researches, he has got a solid knowledge on the topic, which allowed him to develop some very simple, but at the same time, powerful solutions.



**Anker Mardal**

Educated as an electro-mechanic, he has worked for most of his career in the electrical and electronical sectors, designing electronic circuits and developing wave radio devices. He has a large experience in PV panels, batteries and wind turbines and he is currently the data responsible for Folkecenter's new test station for small wind turbines.



# Enrollment Fee

The purpose of the course is to form people on LED technology, no matter what background do they come from; for this reason, the enrollment fee is designed to be as affordable as possible. We strongly support the participation of young and senior people, but also we want to encourage the presence of women in the renewable energy field and we want to do that by making the program more accessible to them. The table below summarizes the different enrollment fees.

Category	Fee
Standard	650 €
Women	550 €
Students <sup>1</sup>	550 €
Retired	550 €

<sup>1</sup> A valid student card or other proof of enrollment should be provided upon registration

## The course fee includes:

- Access to all the lessons of the week
- Lunch
- VAT (25%)
- Shuttle service from/to Ydby Train Station to/from Folkecenter
- Invitation letter for visa application, if needed
- Final certificate
- Subscription to Folkecenter's Alumni Network

## The course fee does not include:

- Board and lodging, either than lunch
- Transportation from/to home country to/from Ydby Train Station
- Any cost associated with visa applications
- Alcoholic drinks

Please, note that in case the minimum number of students is not reached the course will be cancelled and the course fee will be refunded to the participants. Please, note that Folkecenter will not refund any other expense the participant has undergone through (e.g. transportation, accommodation, etc.).

In case of cancellation, participants will be informed no later than 3 weeks before the course starts.



# Registration & Cancellation

Registration to the course must be done on [www.folkecenterevents.net](http://www.folkecenterevents.net) by the deadline agreed. Please, note that there is a maximum number of participants: places will be assigned based on the first come/first served policy,

In case the minimum participant number is not reached, the course will be cancelled. Participants will be notified latest 3 weeks before the first day of classes and the full course fee will be refunded. Please, note that Folkecenter will not refund any other expense the participant has undergone through (e.g. transportation, accommodation, etc.).

Please note that the the prices above refer to the participation on an organized course. On-demand courses will have a different price, which will be agreed between Folkecenter and the entity requesting the activity.

Participants can cancel their registration by writing a mail to [dp@folkecenter.dk](mailto:dp@folkecenter.dk). Please, note that the following policies apply:

- Cancellation more than two months before the course: full refund;
- Cancellation between two and one month before the course: 50 % refund;
- Cancellations one month before (or less): no refund;

## Too difficult to come to Denmark? We can help!

We realize that the trip to Denmark may pose challenges for some countries. If that is the case, we are happy to engage in a conversation on how we could overcome these problems.

Although we cannot guarantee anything, we will do our best to help you out in that, including traveling to you, if the conditions allow for it!

If you are interested in the training opportunities provided by this course, just get in contact with us so that we can find an appropriate solution.





# Nordic Folkecenter for Renewable Energy

Our ultimate long term goal is a complete replacement of fossil fuels and atomic power with renewable energies & energy savings while promoting the sustainability, resilience and development of local communities around the world. For this purpose, we have collaborated with local civil society organizations, research and education centers, companies, professionals and governmental authorities from all over the globe for decades.

Among others, we are an active and founding member of the World Wind Energy Association (WWEA), the European Association for Renewable Energy (EUROSOLAR), the European Renewable Energies Federation (EREF) and the International Network for Sustainable Energy (INFORSE). We are also the Danish coordinator of EUROSOLAR and the European Solar Prize.

## Our Activities

- Renewable energy training & information
- Transfer of Know-how and Best Practices
- Collaboration with Green Entrepreneurs and SMEs
- Testing & Demonstration
- Research & Development
- Implementation of Renewable Energy in Developing Countries

For more information visit [www.folkecenter.net](http://www.folkecenter.net).



# Nordic Folkecenter for Renewable Energy

*Working for a world running on 100% renewables since 1983*



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